SeaCoaster

New Air-Assisted Boat Reduces Energy Consumption While Improving Performance

With assistance from DOE's Inventions and Innovation Program, Air Ride Craft, Inc., has developed an air-assisted catamaran with wave-slicing fine entry sidehulls. Unlike typical catamarans, SeaCoaster has recesses that are built into the underside of each sidehull and are pressurized with air from powered blowers. The air cushions formed between the catamaran's sidehulls and the water surface support about 80% of the vessel's weight. This design decreases draft, substantially reduces wetted area resistance, and cuts propulsive power requirements by about 50% compared with conventional catamarans and monohulls at cruise speeds. Even with blower power requirements, SeaCoaster still has only about 60% of the power requirements of a standard catamaran. The new design has no flexible seals and no air cushion between the sidehulls, as is the case with surface effect ships (SES). The SeaCoaster has excellent platform stability and provides a smooth ride, unlike the SES bumpy "cobblestone effect."

The first commercial application of the SeaCoaster was by Island Express Boats Lines, which has been operating a 65-foot, 149 passenger ferry between islands up to 25 miles offshore on Lake Erie since 1999. Air Ride Craft is now demonstrating a 102- foot SeaCoaster for the Office of Naval Research. The SeaCoaster offers several advantages as a naval vessel including that it is beachable, has a reduced sonar and magnetic signature, and is much less susceptible to damage from underwater ordinance explosions. After a six-month testing program for the Navy, the vessel will be modified for use as a fast ferry.

SeaCoaster Demonstration Vessel

Overview

- Developed by Air Ride Craft, Inc.
- Commercialized in 1999
- One boat operating since 1999

Applications

- Passenger ferry
- Ferry for offshore oil rigs
- Multiple military applications
- Large transoceanic freighters

Capabilities

- Cuts propulsive power requirements by 50% compared with a conventional catamaran at cruise speeds.
- Decreases draft and substantially reduces wetted-area resistance.
- Offers excellent platform stability and ride characteristics, with no SES "cobblestone effect".

Benefits

Energy Savings and Emissions Reductions

Reduces energy consumption by 40% over conventional ferries.

Improved Performance

Provides significantly improved performance for a wide variety of commercial and naval vessels.

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